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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/731,799

12/08/2000

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826.1641 (JDH)

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21171

7590

01/21/2005

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EXAMINER

STEVENS, THOMAS H

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 09/731,799	Applicant(s) DEGUCHI, MASAHIRA	
	Examiner Thomas H. Stevens	Art Unit 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2004.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-16 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____. | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
6) <input type="checkbox"/> Other: _____. |
|--|--|

DETAILED ACTION

1. Claims 1-16 were examined.

Response to Applicant's Arguments (Second Office Action)

Claim Rejections - 35 USC § 112

2. Applicant's are thanked for addressing this issue. Rejection to claims 2, 8, 9 and 12 are withdrawn. However, examiner suggest replacing "unnecessary" to "redundant" and 'arrangement" with either "Cartesian" or "dimension" for claims 2 and 8 respectively.

Claim Rejections - 35 USC § 101

3. Applicant's are thanked for addressing this issue. Rejection is withdrawn.

Claim Rejections - 35 USC § 102

4. Applicant's are thanked for addressing this issue. Applicant's arguments are persuasive, thus previous rejection is withdrawn. However, examiner has cited new art by Imagawa et al.

(Third Office Action)

Claim Interpretation

5. Office personnel are to give claims their **"broadest reasonable interpretation"** in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969). See *also *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) ("During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow") The reason is simply that during patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process. The examiner equates the terms "redundant" and "unnecessary".

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 1-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Imagawa et al. (U.S. Patent 6,819,782 (2004)). Imagawa et al., teaches an eigenspace calculation coordinate method for a plurality of images (abstract) by using linear techniques (i.e., eigenvalues and eigenvectors).

Claim 1: A model optimization apparatus, comprising: a detection unit detecting one or more redundant shapes (column 5, lines 37-60) from a plurality of shapes forming a three-dimensional model (column 24, lines 14-16) of an object by comparing shape

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coordinates (columns 23-24, lines 60-67 and 1-5, respectively), and generating a list of shapes (figure 7 with column 23, lines 30-35) to be deleted (abstract) and a list of shapes (figure 7 with column 23, lines 30-35) to be amended among the one or more redundant shapes responsive to the coordinate based comparison (columns 23-24, lines 60-67 and 1-5, respectively); a deletion unit deleting shape information of shapes in the list of shapes to be deleted (abstract; columns 23-24, lines 60-67 and 1-5, respectively), and amending shape information of shapes in the list of the shapes to be amended (column 24, lines 60-63); and a construction unit reconstructing (column 24, lines 60-63) a three-dimensional model (column 24, lines 14-16) of the object according to remaining shape information including the amended shape information and shape information of shapes other than one or more redundant shapes (column 24, lines 35-57).

Claim 2: The apparatus according to claim 1, (column 24, lines 14-16; columns 23-24, lines 60-67 and 1-5, respectively; column 24, lines 60-63; column 24, lines 14-16) wherein: said detection unit detects an unnecessary shape not contributing for an outline of the three-dimensional model (column 24, lines 14-16) from the plurality of shapes (figure 7 with column 23, lines 30-35); and said deletion unit deletes the shape information about the unnecessary shape (abstract; columns 23-24, lines 60-67 and 1-5, respectively).

Claim 3: The apparatus according to claim 2, (column 24, lines 14-16; columns 23-24, lines 60-67 and 1-5, respectively; column 24, lines 60-63; column 24, lines 14-16; abstract; columns 23-24, lines 60-67 and 1-5, respectively) wherein: said detection unit detects two shapes having same outline information and offsetting each other (column 5, lines 54-56 and column 6, lines 1-5); and said deletion unit deletes the two shapes (column 5, lines 54-56 and column 6, lines 1-5; abstract; columns 23-24, lines 60-67 and 1-5, respectively).

Claim 4: The apparatus according to claim 2, (column 24, lines 14-16; columns 23-24, lines 60-67 and 1-5, respectively; column 24, lines 60-63; column 24, lines 14-16; abstract; columns 23-24, lines 60-67 and 1-5, respectively) wherein: said detection unit detects two shapes having different outline information and offsetting each other (column 5, lines 54-56 and column 6, lines 1-5); and said deletion unit deletes the two shapes (column 5, lines 54-56 and column 6, lines 1-5; abstract; columns 23-24, lines 60-67 and 1-5, respectively).

Claim 5: The apparatus according to claim 1, (column 24, lines 14-16; columns 23-24, lines 60-67 and 1-5, respectively; column 24, lines 60-63; column 24, lines 14-16) wherein: said detection unit detects two or more shapes which can be represented by one shape from the plurality of shapes (column 6, lines 10-18); and said deletion unit integrates shape information of the two or more shapes into shape information of the one shapes (column 6, lines 10-18; column 6, lines 10-18).

Claim 6: The apparatus according to claim 5, (column 24, lines 14-16; columns 23-24, lines 60-67 and 1-5, respectively; column 24, lines 60-63; column 24, lines 14-16; column 6, lines 10-18) wherein: said detection unit detects two shapes having same sectional shape information; and said deletion unit deletes shape information of one of the two shapes (abstract; columns 23-24, lines 60-67 and 1-5, respectively), amends shape information of the other shape (column 6, lines 10-18), and integrates shape information of the two shapes into shape information of one shape (column 6, lines 10-18).

Claim 7: The apparatus according to claim 5, (column 24, lines 14-16; columns 23-24, lines 60-67 and 1-5, respectively; column 24, lines 60-63; column 24, lines 14-16; column 6, lines 10-18) wherein: said detection unit detects two shapes having same height information; and said deletion unit deletes shape information of one of the two shapes (column 5, lines 54-56 and column 6, lines 1-5; abstract; columns 23-24, lines 60-67 and 1-5, respectively) amends shape information (column 24, lines 60-63) of the other shape, and integrates shape information of the two shapes into shape information of one shape (column 6, lines 10-18).

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Claim 8: The apparatus according to claim 5, (column 24, lines 14-16; columns 23-24, lines 60-67 and 1-5, respectively; column 24, lines 60-63; column 24, lines 14-16; column 6, lines 10-18) wherein: said detection unit detects two or more shapes having a same arrangement plane information and same height information; and said deletion (abstract; columns 23-24, lines 60-67 and 1-5, respectively) unit amends shape information of one of the two or more shapes deletes shape information of other shapes, and integrates shape information of the two or more shapes into shape information of one shape (column 6, lines 10-18).

Claim 9: The apparatus according to claim 5, wherein (column 6, lines 10-18): said detection unit detects two or more shapes defined as pattern attributes (figure 7 with column 23, lines 30-35); and said deletion unit amends shape information of one of the two or more shapes, deletes shape information of other shapes, (column 5, lines 54-56 and column 6, lines 1-5; abstract; columns 23-24, lines 60-67 and 1-5, respectively) and integrates shape information of the two or more shapes into shape information of one shapes (column 6, lines 10-18).

Claim 10: The apparatus according to claim 1, wherein (column 24, lines 14-16; columns 23-24, lines 60-67 and 1-5, respectively; column 24, lines 60-63; column 24, lines 14-16): said detection unit comprises: a deletion target storage unit storing the list of the shapes to be deleted (figure 7 with column 23, lines 30-35; column 7, lines 10-

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30); and an amendment target storage unit storing the list of the shapes to be amended (figure 7 with column 23, lines 30-35; column 7, lines 10-30).

Claim 11: The apparatus according to claim 10, (column 24, lines 14-16; columns 23-24, lines 60-67 and 1-5, respectively; column 24, lines 60-63; column 24, lines 14-16; figure 7 with column 23, lines 30-35; column 7, lines 10-30;) wherein said deletion unit amends the shape information of the shapes to be amended according to at least one of vertex coordinate (column 7, lines 20-25; column 24, lines 50-55) information and height information included in deleted shape information.

Claim 12: The apparatus according to claim 1, (column 24, lines 14-16; columns 23-24, lines 60-67 and 1-5, respectively; column 24, lines 60-63; column 24, lines 14-16) wherein said construction unit comprises a unit for amending arrangement reference information, (figure 7 with column 23, lines 30-35; figure 9, with columns 25-26, lines 60-67 and 1-5, respectively) included in the remaining shape information, and reconstructs the three-dimensional model (column 24, lines 14-16) according to the amended arrangement reference information (column 6, lines 10-18).

Claim 13: The apparatus according to claim 1, (column 24, lines 14-16; columns 23-24, lines 60-67 and 1-5, respectively; column 24, lines 60-63; column 24, lines 14-16) wherein said construction unit comprises a unit for generating a pseudo shape corresponding to arrangement reference information (figure 7 with column 23, lines 30-

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35; figure 9, with columns 25-26, lines 60-67 and 1-5, respectively) included in the remaining shape information, and reconstructs the three-dimensional model (column 24, lines 14-16) using the pseudo shape without amending the arrangement reference information.

Claim 14: A computer-readable storage medium storing a program used to direct a computer to perform (column 54, lines 44-67): detecting one or more redundant shapes from a plurality of shapes (columns 23-24, lines 60-67 and 1-5, respectively) forming a three-dimensional model (column 24, lines 14-16) of an object by comparing coordinates; and generating a list of shapes to be deleted and a list of shapes to be amended among the one or more redundant shapes responsive to the coordinate based comparison; deleting shape information of shapes in the list of the shapes to be deleted, and amending shape information of shapes in the list of the shapes to be (abstract; columns 23-24, lines 60-67 and 1-5, respectively) deleted, and amending shape information of shapes in the list of the shapes to be amended; and reconstructing a three-dimensional model of the object according to remaining shape information including the amended shape information and shape information of shapes other than the one or more redundant shapes (column 24, lines 35-57).

Claim 15: A method of optimizing a model, comprising: automatically detecting one or more redundant shapes from a plurality of shapes forming a three-dimensional model (column 24, lines 14-16) of an object, by comparing shape coordinates and generating a

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list of shapes to be deleted and a list of shapes to be amended among the one or more redundant shapes responsive to the coordinate comparison; automatically deleting shape information of shapes in the list of the shapes (figure 7 with column 23, lines 30-35) to be deleted, and amending shape information of shapes in the list of the shapes to be amended (column 24, lines 60-63); and automatically reconstructing a three-dimensional model (column 24, lines 14-16) of the object according to remaining shape information including the amended shape information and shape information of shapes other than the one or more redundant shapes (column 6, lines 10-18).

Claim 16: A model optimization apparatus, comprising: detection means for detecting one or more redundant shapes (column 5, lines 37-60) from a plurality of shapes forming a three-dimensional model (column 24, lines 14-16) of an object by comparing shape coordinates and generating a list of shapes to be deleted and a list of shapes (abstract; columns 23-24, lines 60-67 and 1-5, respectively) to be amended among the one or more redundant shapes responsive to the coordinate based comparison (columns 23-24, lines 60-67 and 1-5, respectively); deletion means for deleting shape information of shapes (abstract; columns 23-24, lines 60-67 and 1-5, respectively) in the list of the shapes to be deleted, and amending shape information of shapes in the list of the shapes to be amended (figure 7 with column 23, lines 30-35); and construction means (column 24, lines 60-63) for reconstruction a three-dimensional model of the object according to remaining shape information including the amended shape

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information and shape information of shapes other than one or more redundant shapes (column 24, lines 35-57).

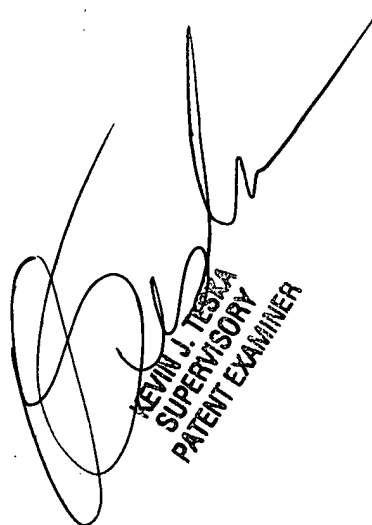
Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Tom Stevens whose telephone number is 571-272-3715, Monday-Friday (8:00 am- 4:30 pm) or contact Supervisor Mr. Kevin Teska at (571) 272-3716. Fax number is 571-273-3715

Any inquires of general nature or relating to the status of this application should be directed to the Group receptionist whose phone number is (571) 272-1400

January 6, 2005

THS



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